

Method and apparatus for detecting position using phase-shifted signals

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Abstract

First A.C. output signals ($\sin(\omega t + \theta_1)$) having an electric phase angle shifted in a positive direction in accordance with a position-to-be-detected is produced along with a second A.C. output signal ($\sin(\omega t - \theta_2)$) having an electric phase angle shifted in a negative direction. First and second detection data are generated by detecting respective phase differences ($+\theta_1$; and $-\theta_2$) of the first and second A.C. output signals from a predetermined reference phase. First predicted value is provided on the basis of at least two successive samples of the first detection data, and a second predicted value is provided on the basis of at least two successive samples of the second detection data. The first and second predicted values are modified to provide a standard predicted value for correcting a nonlinear error resulting from the Doppler effect. Using this standard predicted value, predictive interpolation is performed on the first and second detection data sequentially with the passage of time, so as to provide first and second interpolated detection data. With this arrangement, it is possible to achieve improved response and detection performance with respect to dynamic

characteristics. 

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